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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,597	12/22/2003	John R. Mick JR.	5646-120	7564
20792	7590	09/08/2006	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			NGUYEN, THAN VINH	
PO BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	
			2187	

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/743,597

Applicant(s)

MICK ET AL.

Examiner

Than Nguyen

Art Unit

2187

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-8 and 10-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 and 30-35 is/are allowed.
- 6) ☒ Claim(s) 1,4-8,10,12-14,16-29 and 36-40 is/are rejected.
- 7) ☒ Claim(s) 11 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This is a response to the amendment, filed 6/20/06.
2. Claims 2,9,41 are canceled. Claims 1,3-8,10-40 remain pending.

#### ***Response to Amendment/Arguments***

3. In response to the amendment to the claims 2-12,14-22,24-29,31-35,37 the previous objection to these claims is withdrawn.
4. In response to Applicant's explanation regarding the rejection of claim 10 under 35 USC 112, second paragraph, this rejection has been withdrawn. However, the Examiner will interpret "compaction" as a natural result of efficient memory usage since Applicant provides no evidence of actual procedures for compacting non-compacted memory.
5. Applicant's arguments filed 6/20/06 have been fully considered but they are not persuasive.
6. Applicant has amended claim 3 to include allowable subject matter indicated in the previous office action. Claim 3 is now allowable.
7. As to claim 1,14,38 Applicant argues that Cheng does not teach providing independent index mappings for the CAM segments. The Examiner disagrees. The Examiner reads the above claim language as each CAM segment/block/location has a corresponding index mapping. This limitation is taught by Cheng, who provides mapping/translation of each CAM locations associated with an index (col 7-8). Thus, there is a unique mapping for each CAM segment/block/location.
8. As to claim 13, Applicant argues Cheng does not teach CAM storing databases and translating CAM indices to database relative indices. Cheng's whole invention is

Art Unit: 2187

toward database search engines. Cheng teaches CAM units, each storing a CAM database of data (4/6-10) and providing translation of CAM indices, which are database indices (translation; 4/10-15; cols 6-8).

9. As to claim 23, Applicant argues Cheng does not teach providing a plurality different index translations. The Examiner interprets this language to mean performing a plurality of index translations. Cheng teaches translating multiple indices, each with its own translation/mapping (col 6-8).

10. As to claim 30, Applicant argues Cheng does not further teach storing memory entry size information and to provide translation of CAM indices to another memory space based on the stored memory entry size information. This argument is persuasive. Claims 30-35 are allowable for the above reasons.

11. As to claim 36, Applicant argues mapping CAM indices of CAM segments to other memory spaces. Cheng teaches having multiple CAMs, each storing a database (4/6-10) and performing translation of CAM segment/block/locations, each mapping to a separate location/space (col 6-8). Thus, Cheng does teach translating CAM indices to multiple spaces/locations.

12. As to claim 4,6,16 Applicant argues Cheng does not teach index mapping for databases. This is untrue. Cheng teaches CAM units, each storing a CAM database of data (4/6-10) and providing translation of CAM indices, which are database indices (translation; 4/10-15; cols 6-8).

13. As to claim 7, Applicant argues Cheng does not teach the memory addresses associated with a command source for the search engine. Cheng teaches receiving input

Art Unit: 2187

values/addresses of the hash units (search engine) and matching/mapping these against the CAM database (4/10-15). This reads on the claimed limitations.

14. Applicant's argument regarding claim 11 is persuasive. Claim 11 is allowable over Cheng.

15. As to claim 18,26 Applicant argues Cheng does not teach mapping indices/addresses on a segment-by-segment basis. The Examiner disagrees. Cheng teaches mapping each address/index with a corresponding CAM entry/segment/block/location (col 6-8).

16. As to claim 24, Applicant argues Cheng does not teach a programmable mapping table to provide index translations. The mapping tables of Cheng are programmed/stored with mapping information to provide mapping of indices/addresses (col 4/18-54). Thus the Examiner maintains that the mapping tables of Cheng is programmable, or can be changed/programmed.

### ***Claim Rejections - 35 USC § 102***

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

18. Claims 1,4-8,10,12-14,16-29,36-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Cheng et al (US 6,889,225) B2.

As to claim 1,13,23,36,38:

Art Unit: 2187

19. Cheng teaches a content addressable memory search engine. Cheng teaches an integrated circuit chip comprising: a search engine (210) including a content addressable memory (CAM 224) configured to produce CAM indices responsive to search instructions provided to the search engine and an index translation circuit (logic 226) operatively coupled to the CAM and configured to provide translation of the CAM indices (7/18-53; 8/8-31; Fig. 3-4).

As to claim 14,18,24,26:

20. Cheng teaches the index translation circuit is configurable to provide independent index mappings for respective segments of the CAM (provide CAM address translation/mapping; 8/24-41).

As to claim 4,18,27,37:

21. Cheng teaches the index translation circuit is configurable to provide independent index mappings for respective databases (logic 226 provide CAM mappings; 8/24-31).

As to claim 5,16,17,40:

22. Cheng teaches the index translation circuit is configurable to provide translation of the CAM indices to any of a plurality of memory spaces (logic unit 226 provides translation of CAM index; 8/24-31).

As to claim 6:

23. Cheng teaches the index translation circuit is configurable to provide translation of absolute indices associated (translate CAM index; 8/24-31).  
with a search machine comprising the search engine to database relative indices and memory addresses.

As to claim 7,8,10,19,20,25:

Art Unit: 2187

24. Cheng teaches translating CAM indices into addresses (8/24-31).

As to claim 12,21,22,28,29:

25. Cheng teaches the index translation circuit comprises a mapping table operative to associate respective combinations of a shift factor and a base address for a database with respective CAM segment identifiers, wherein the shift factors indicate database entry size, and wherein the index translation circuit is operative to receive a CAM index, to identify a base address and a shift factor corresponding to a CAM segment identifier in the received CAM index, to concatenate the identified base address with a segment entry offset in the received CAM index, and to shift the concatenated result according to the identified shift factor to produce a database relative index corresponding to the received CAM index (translation using base address and offset; 6/55-67)..

As to claim 39:

26. Cheng teaches a memory space (8/24-58). The memory space could be for any device.

***Allowable Subject Matter***

27. Claims 3,30-35 are allowable for reasons indicated above.

28. 11,15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including **all of the limitations of the base claim and any intervening claims.**

***Conclusion***

29. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

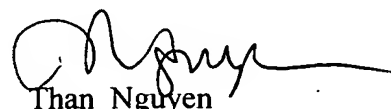
Art Unit: 2187

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Than Nguyen whose telephone number is 571-272-4198. The examiner can normally be reached on 8am-3pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Than Nguyen can be reached on (571) 272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Than Nguyen  
Primary Examiner